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A TRANSPARENT DRYING AND ABSORBING UNIT FOR USE WITH THE THERMAL-CONDUCTIVITY GAS ANALYZER

By G. L. Phillips
Division of Stored Product Insect Investigations

The thermal-conductivity gas analyzer, described in E-851,[1/] is very versatile. Its cell unit is arranged to measure a gas against a sealed air reference, or a wet or dry gas against a wet or dry air reference. When this analyzer was used for checking gas concentrations in routine fumigations, a sealed air reference was used, which required a drying agent. Models available at that time were equipped with a metal drier unit, and it was necessary to open the unit and remove the drying agent to determine its condition. A simple and efficient drier has now been constructed in which the drying agent is visible and the amount of its exhaustion easily discernible at a glance.

The drier may be made, as shown in figure 1, from a 5-inch length of 1 1/2-inch Lucite tubing with a 1/8-inch wall thickness. This material makes a light and almost unbreakable drier. The tubing is enclosed within a holder of metal strapping 1/2 inch wide, such as is used around crates. A small suitcase fastener is soldered to one side of the holder so that, when the tubing is inserted and the fastener snapped down, the tubing is made airtight. Flanged stoppers are used as gaskets between the tubing and the holder. A 1/8-inch needle valve and a 1/8-inch elbow with a short length of 1/4-inch copper tubing are used to connect the drier with the gas analyzer and the pump.

The drier is installed on the outside of the gas analyzer. It may be held in place by a coiled spring, one end of which is fastened to the analyzer and the other equipped with a hook that is easily slipped over a screw head, or both ends may be fastened and the spring pulled out to allow the drier to be inserted.

For gas analyzers equipped with a pump that has a valve to control the rate of flow, a simpler drier may be made by inserting a rubber stopper at each end of a piece of Lucite tubing. A hole is made in each

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1/ Analysis of Methyl Bromide by Measurement of Thermal Conductivity.

stopper and a short length of 1/4-inch (o.d.) Saran or copper tubing inserted for placing the drier in the line between the analyzer and the sample.

The drier may be filled with an absorbing agent, such as Caroxite, to remove any carbon dioxide that occurs during the fumigation of certain plants packed in moist peat. It may also be used to remove one component of a mixture of gases, after passage through the first part of a double-pass unit.

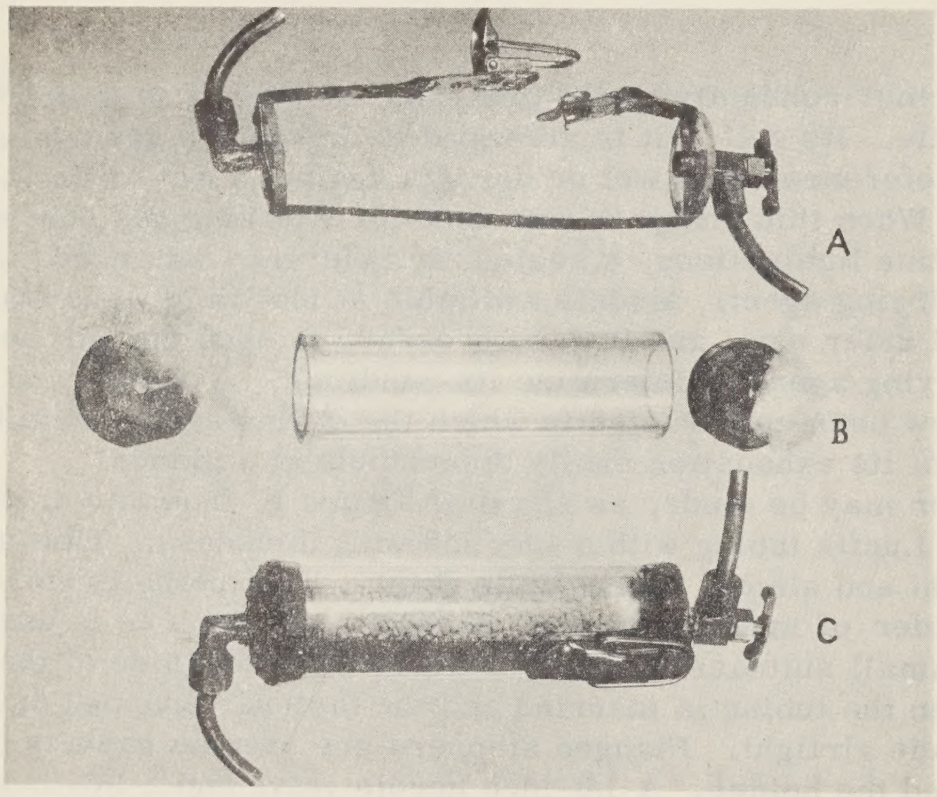

Figure 1.--Transparent drying and absorbing unit:
A, Metal holder for Lucite tubing
B, Lucite tubing and flanged stoppers
C, Assembled unit

Photo by G. J. Baetzhold.